

# Service Manual

**LCD COLOR MONITOR**

**Model : CML-710**



**DAEWOO LUCOMS CO., LTD.**

*<http://www.lucoms.com>*

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# SAFETY PRECAUTIONS

**CAUTION:** No modifications of any circuits should be attempted. Service work should be performed only after you are thoroughly familiar with all of the following safety checks and servicing guidelines.

## ◆ Safety Check

Care should be taken while servicing the inverter that generates the high voltage to lighten CCFL of the LCD panel.

## ◆ Fire & Shock Hazard

- Insert an isolation transformer between the analog color display and AC power line before servicing the chassis.
- When servicing, pay close attention to the original lead dress especially in the high voltage circuit area; if a short circuit is found, replace all parts which have been overheated as a result of the short circuit.
- All the protective devices must be reinstalled per original design.
- Soldering must be inspected for possible cold solder points, frayed leads, damaged insulation, solder splashes or sharp solder points. Be certain to remove all foreign materials.

# GENERAL SAFETY INFORMATION

## ◆ Terms in the manual

- CAUTION Statements identify conditions or practices that could result in damage to the equipment or other property.
- WARNING Statements identify conditions or practices that could result in personal injury or loss of life.

## ◆ Terms as marked on equipment

- CAUTION Statements indicate a personal injury hazard not immediately accessible as one reads the marking or a hazard which is properly included on the equipment itself.
- WARNING Statements are clearly concerning indicated personal injury hazards.

## ◆ Symbols in the manual

The symbols indicate where applicable cautionary or other information is to be found.

## ◆ Symbols as marked on equipment

Protective GROUND terminal



## ◆ High Voltage Warning And Critical Component Warning Label

The following warning label is on the inverter isolation case.

# SERVICING PRECAUTIONS

**CAUTION:** Before servicing instruments covered by this service manual, its supplements, and addendum, please read and follow the SAFETY PRECAUTIONS of this manual.

**NOTE:** If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 1 of this manual, always follow the safety precautions. Remember: Safety First.

## ◆ General Servicing Precautions

1. Always unplug the AC power cord from the AC power source before:
  - a. Removing or reinstalling any component, circuit board, module, or any other instrument assembly.
  - b. Disconnecting or reconnecting any electrical plug or other electrical connection.
  - c. Connecting a test substitute in parallel with an electrolytic capacitor in the instrument.

**CAUTION:** A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion.

2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM. etc.) equipped with a suitable high voltage probe. Do not test high voltage by “drawing an arc”.
3. Do not spray chemicals on or near this instrument, or any of its assemblies.
4. Unless otherwise specified in this service manual, only clean electrical contacts by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick, or comparable nonabrasive applicator: 10% (by volume) Aceton and 90% (by volume) isopropyl alcohol (90%-99% strength).

**CAUTION:** This is a flammable mixture. Unless specified in this service manual, lubrication of contacts is not required.

5. Do not apply AC power to this instrument and/or any other of its electrical assemblies unless all the solid-state device heat sinks are correctly installed.
6. Always connect the test instrument ground lead to the appropriate instrument chassis ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.
7. Only use the test fixtures specified in this service manual with this instrument.

## ◆ Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity.

Such components are commonly called Electrostatically Sensitive (ES) Devices.

The typical examples of ES devices are integrated circuits, some field-effect transistors, and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, wipe off any electrostatic charge on your body by touching any known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device which should be removed for potential shock reasons prior to applying power to the unit under testing conditions.
2. After removing the electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil to prevent electrostatic charge buildup or exposure to the assembly.
3. Only use a grounded-tip soldering iron to solder or unsolder ES devices.
4. Only use an anti-static type solder removal device. Some solder removal devices not classified as “anti-static” can generate enough electrical charges to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate enough electrical charges to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil, or comparable conductive material).
7. Immediately before removing the protective material from the leads of replacement ES devices, touch the protective material to the chassis or circuit assembly into which the device will be installed.

**CAUTION:** Be sure that no power is applied to the chassis or circuit, and observe all other safety precautions.

8. Minimize bodily movements when handling unpackaged replacement ES devices. (Otherwise harmful motion such as the brushing together clothes fabric or the lifting your foot from a carpeted floor can generate enough static electricity to damage ES devices).

## ◆ General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron with appropriate tip size and shape that will maintain tip temperature between a 550°F-660°F (288°C-316°C) range.
2. Use an appropriate gauge of RMA resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean.
4. Thoroughly clean the surface to be soldered. Use a small wire-bristle (0.5 inch or 1.25cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following soldering technique:
  - a. Allow the soldering iron tip to reach normal temperature (550°F to 660°F or 288°C to 316°C)
  - b. Hold the soldering iron tip and solder strand against the component lead until the solder melts.
  - c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there until the solder flows onto and around both the component lead and the foil.
  - d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.

**CAUTION:** Work quickly to avoid overheating the circuit board printed foil.

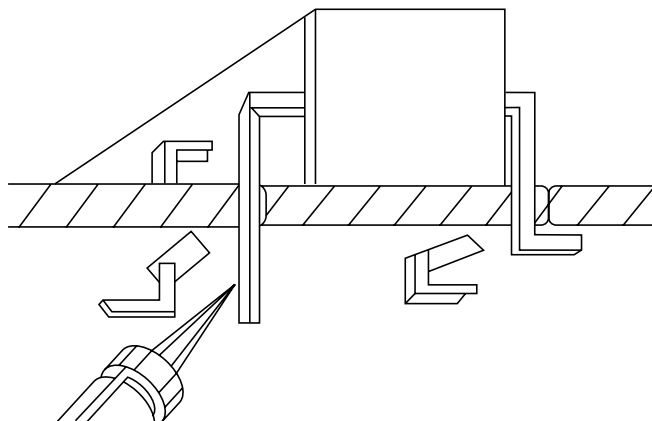


FIGURE 1. USE SOLDERING IRON TO PRY LEADS

### ◆ IC Removal/Replacement

Some utilized chassis circuit boards have slotted (oblong) holes through which the IC leads are inserted and then bent flat against the circuit foil. When holes are slotted, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 on the page under the title of general soldering guidelines.

#### ◆ Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with desoldering braid before removing the IC).

#### ◆ Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the area).

### ◆ “Small-Signal” Discrete Transistor Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend the ends of each of three leads remaining on the circuit board into a “U” shape.
3. Bend the replacement transistor leads into a “U” shape.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the “U” with long nose pliers to ensure metal-to-metal contact, then solder each connection.

### ◆ Power IC, Transistor or Devices Removal/Replacement

1. Heat and remove all solders from the device leads.
2. Remove the heatsink mounting screw (if applicable).
3. Carefully remove the device from the circuit board.
4. Insert new device in circuit board.
5. Solder each device lead and then clip off excess lead.
6. Replace heatsink.

### ◆ Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicularly to the circuit board.
3. Observing diode polarity, wrap each lead out of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect the solder joints of the two “original” leads on the circuit board copper side. If they are not shiny, reheat them and apply additional solder if necessary.



## TECHNICAL INFORMATION

Panel	Size	17-inch (43.2 cm) diagonal
	Pixel Pitch	0.264 x 0.264 mm
	Viewing Angle	70°(Right/Left)
		60°(up), 60°(down)
	Contrast Ratio	400:1 contrast ratio (typ)
	Brightness	250cd/m <sup>2</sup> brightness (typ)
	Color Filter	RGB vertical stripe
Synchronization	Horizontal	30 - 80 KHz
	Vertical	56 - 77 Hz
Video Bandwidth		135 MHz
Max Resolution		1280 x 1024@75Hz
Optimal Resolution		1280 x 1024@75Hz
Colors		8 bit (16M Colors)
Display Area		337.9mm x 270.3mm
PC Input Signal	Sync	H/V separate (TTL)
	Video	15 pin mini D-sub(Analog RGB)
Plug and Play		VESA DDC Compatible
Power Source		100-240 Vac, 50/60 Hz (Free Voltage)
Power Consumption		40 W
Dimension-W x H x D (without speaker)		386 x 398 x 190 mm (with stand)
		386 x 346 x 60 mm (without stand)
Weight-net/gross		6.2/7.6 Kg(13.6/16.7 lbs)
Power Saving		EPA, VESA DPMS, Nutek Compliant
Tilt Range		5° forward, 30° backward
Operating Temperature		10 ~ 40°C /50 ~ 104°F

## GENERAL INFORMATION

This TFT LCD monitor automatically scans all horizontal frequencies from 30KHz to 80KHz, and all vertical frequencies from 56Hz to 77Hz(15" - 50KHz to 75KHz). This TFT LCD monitor supports IBM PC, PC/XT, PC/AT, personal System/2 (PS/2), Apple Macintosh, and compatible users crisp text and vivid color graphics display when using the following graphics adapters : (VGA, Super VGA, VESA, XGA, SXGA and Apple Macintosh Video Card). And so, this TFT LCD monitor has a maximum horizontal resolution of 1280 dots and a maximum vertical resolution of 1024 lines for superior clarity of display.

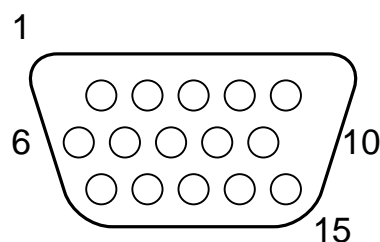
By accepting analog signal inputs which level is zero to 0.7 Volts. This TFT LCD monitor can display 16.7M colors depending on the graphics adapter and software being used.

### ◆ Abbreviations

ADJ	Adjustment
AFC	Automatic Frequency Control
TFT-LCD	Thin Film Transistor Liquid Crystal Display
CCFL	Cold Cathode Fluorescent Lamp
H.SYNC	Horizontal Synchronization
OSC	Oscillator
P.S.U	Power Supply Unit
PWA	Printed Circuit Board Wiring Assembly
R.G.B	Red, Green, Blue
V.Sync	Vertical Synchronization
ADC	Analog Digital Converter

## PIN CONNECTOR

Pin	Signal
1	Red
2	Green
3	Blue
4	GND
5	GND
6	GND - Red
7	GND - Green
8	GND - Blue
9	+5Vdc
10	GND - H.Sync
11	GND - V.Sync
12	Bi-directional Data (SDA)
13	Horizontal Sync
14	Vertical Sync (VCLK)
15	Data Clock (SCL)



Arrangement of 15-pin D-sub connector

## CAUTIONS FOR ADJUSTMENT AND REPAIR

- The white balance adjustment has been done by a color analyzer in factory. The adjustment procedure, described in the service manual is made by a visual check.
- Allow 20 minutes warm-up time for the display before checking or adjusting only electrical specification or function.
- Reform the leadwire after any repair work.

### ◆ Caution For Servicing

- In case of servicing or replacing inverter, high voltage sometimes remains in the output of the inverter. Completely discharge high voltage before servicing or replacing inverter to prevent a shock to the serviceman.

# OPERATION AND ADJUSTMENT

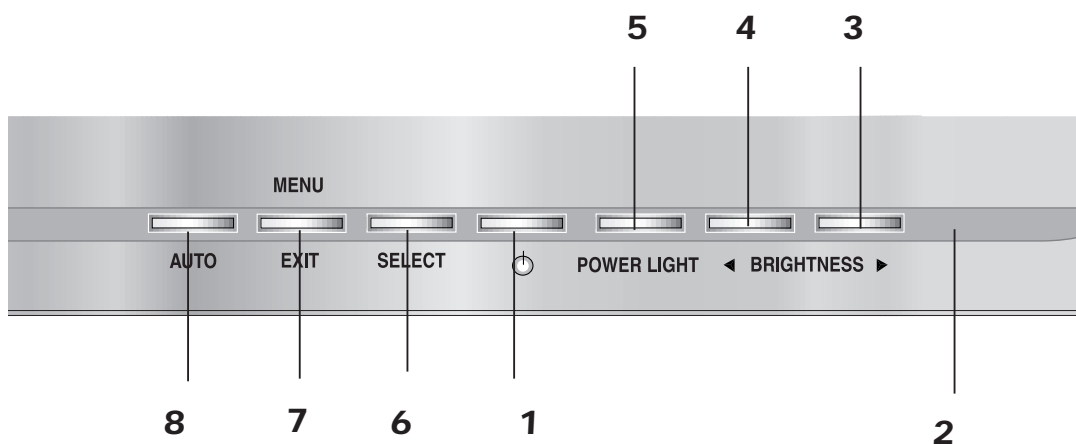
## << L710 >>

### 1 POWER

Switches the monitor on and off.

### 2 POWER Indicator

Shows both normal operation and power management status with power indicator light.



### 3 ► (\*)

Moves cursor to the right or low window in the OSD window and increases the value of any selected function.

### 4 ◀ (\*)

Moves cursor to the left or high window in the OSD window and decreases value of any selected function.

### 5 POWER LIGHT

While the OSD screen is off, you can adjust the screen brightness according to each situation.

### 6 SELECT

Moves from top menu to sub menu in the OSD window and opens the function window for the selected icon.

### 7 MENU/EXIT

Turns the OSD window on.

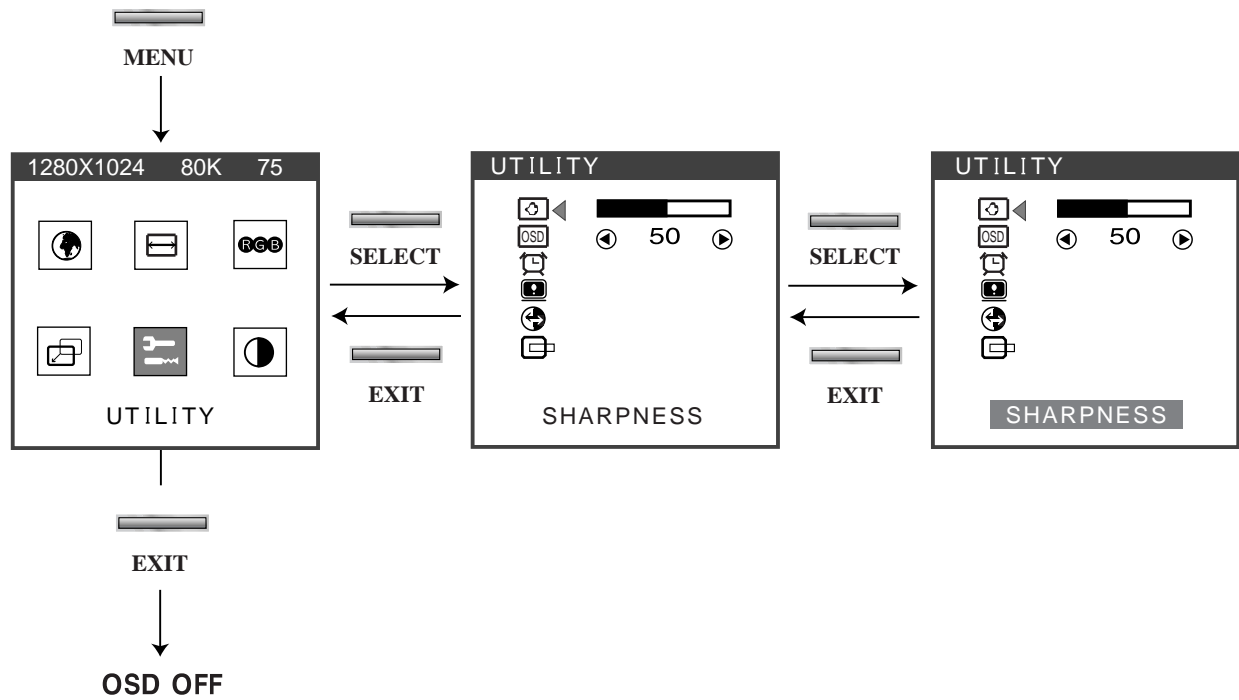
Turns the OSD (On-Screen Display) window off and moves from sub menu to top menu in the OSD window.

### 8 AUTO (\*)

Launches the AUTO TRACKING function directly.

(\*) : Hot Key

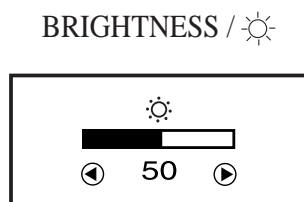
## Key Process



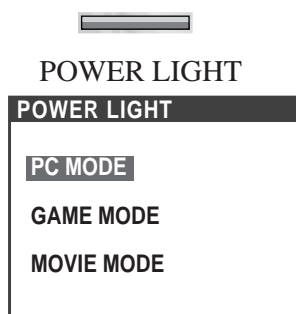
### HOT KEY



- When there is no OSD, if you press this AUTO button, you can use the best display performance fit for a current mode.

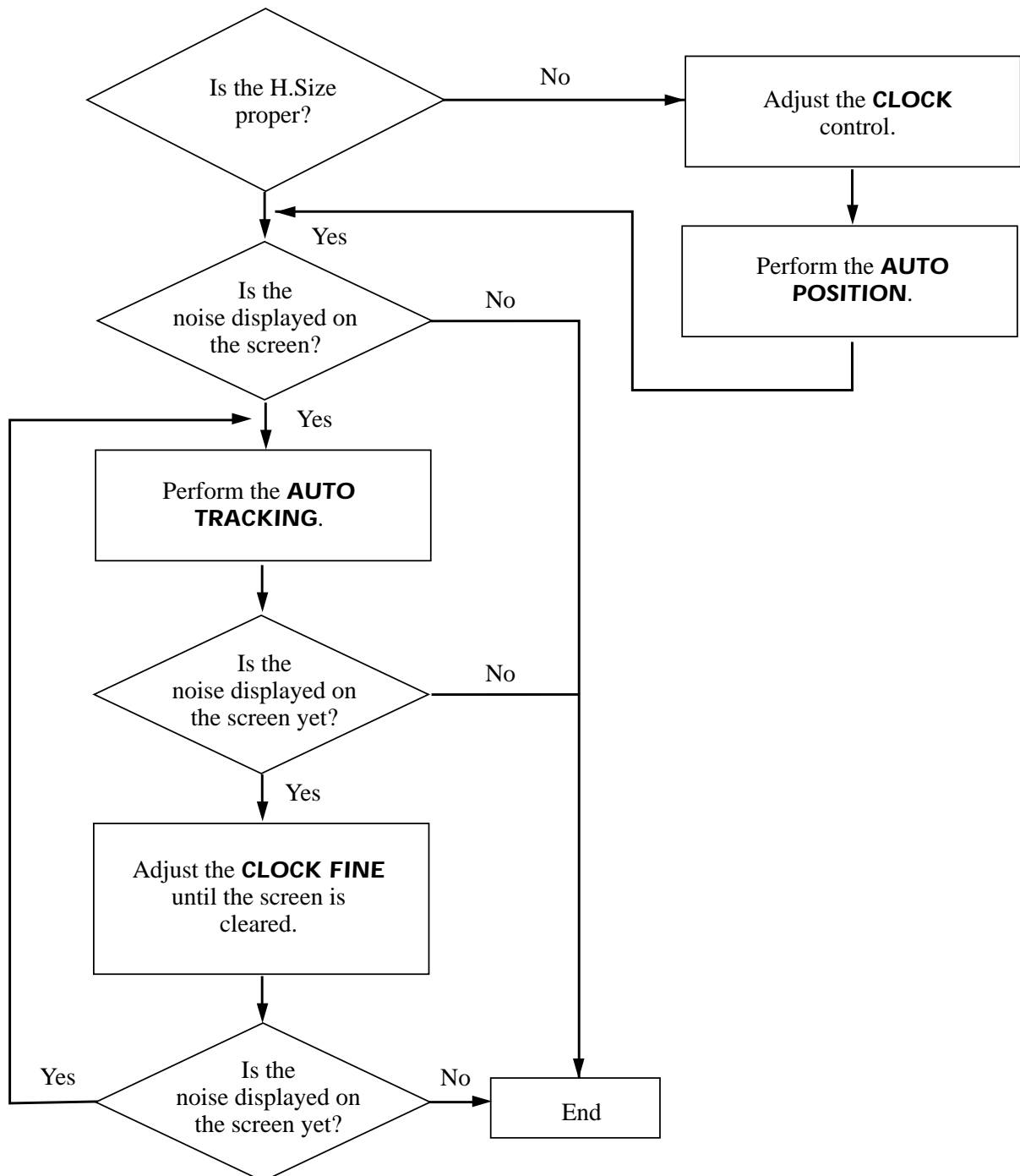


- When there is no OSD, if you press this BRIGHTNESS button, you can adjust the brightness directly.
  - ◀ : decreases brightness
  - ▶ : increases brightness



















- The screen will be brightened progressively by 10%. If you carry out general PC works such as document edition on the Movie mode, you may shorten the life span of LCD panel. Thus, it is recommended to verify the selected mode before use.

## Adjustment Procedure



## OPERATION AND ADJUSTMENT

### OSD Functions

ICON	CONTROL	FUNCTIONS
	<b>LANGUAGE</b>	Select language for OSD (6 languages).
	<b>CLOCK</b>	Adjust the width (horizontal size) of the screen image.
	<b>CLOCK FINE</b>	Sharpen the focus by aligning the illuminated pixels and adjust until the screen image looks focused, crisp and sharp. Adjusting the <b>CLOCK FINE</b> after the <b>CLOCK</b> adjustment will produce a clear screen.
	<b>AUTO TRACKING</b>	Adjust the horizontal & vertical picture image quality and size.
	<b>COLOR TEMPERATURE</b>	Choose different preset color temperatures or set your own customized color parameters.
	<b>RED CONTROL</b>	Adjust the red color.
	<b>GREEN CONTROL</b>	Adjust the green color.
	<b>BLUE CONTROL</b>	Adjust the blue color.
	<b>H. CENTER &amp; V. CENTER</b>	Adjust the position of the display horizontally(left or right) and vertically (up or down).
	<b>SHARPNESS</b>	Adjust the display image quality (if the screen proceed to scaling up).
	<b>OSD POSITION</b>	Adjust the OSD position horizontally (left or right) and vertically (up or down).
	<b>OSD TIME OUT</b>	Adjust the display OSD Menu.
	<b>STATUS</b>	Display horizontal & vertical frequency and polarity.
	<b>RECALL</b>	Reset the screen to the Factory Preset Display Settings.
	<b>AUTO POSITION</b>	Choose automatically the proper horizontal position and vertical position & size of the screen image.
	<b>CONTRAST</b>	Adjust the contrast of image, the difference between light and dark areas on the screen.





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# ALIGNMENT PROCEDURE

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## Standard Check point

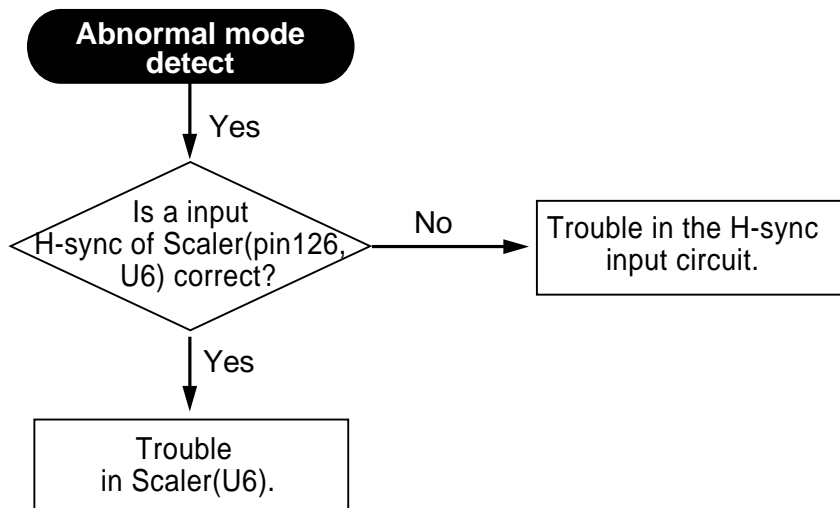
1. Power source : 100 - 240Vac, 50/60Hz.
2. Aging : Take at least 20 minutes warm-up time.
3. Signal
  - Video input : Analog 0.7Vpp 75Ω terminal positive polarity
  - Synchronizing : acceptable negative or positive at TTL level
  - Max. Resolution :  
17"-1280 x 1024@75Hz,
- Frequency:
  - 17" - Horizontal : 30KHz - 80KHz
  - Vertical : 56Hz - 77Hz (available only non interlace mode)

## Adjustment

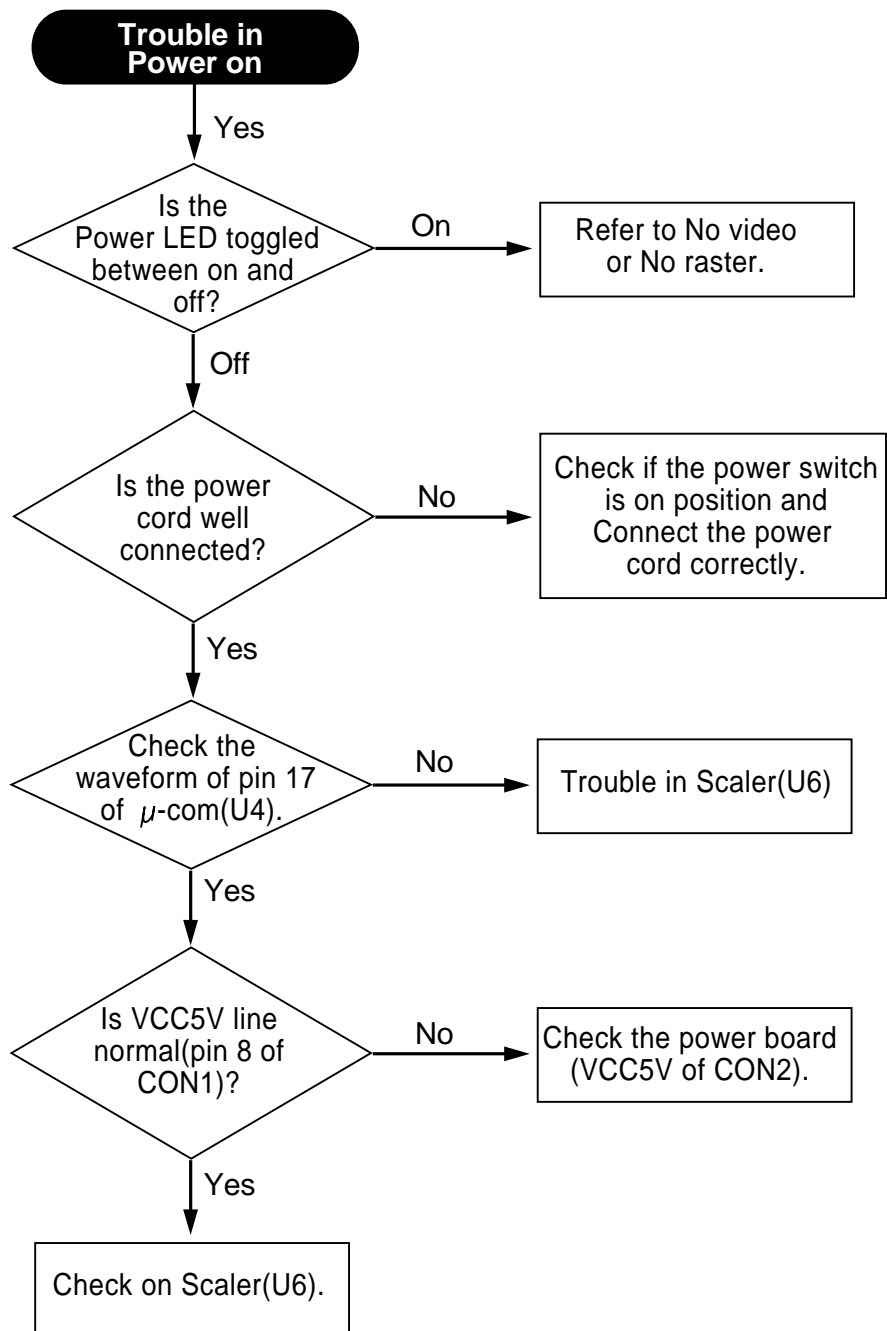
1. Sharpness set to 0%
  2. Contrast set to 100%
  3. Brightness set to 100%
  4. Switching to factory alignment mode  
Press power key with Brightness left key at the power off status.
  5. Set up the tracking  
See the SVC manual at page 14th.
  6. Switching to user's mode  
If turn-off and turn-on then switched to user's mode.
- \* All of adjusted data stores by fade out of OSD.

## TROUBLESHOOTING HINTS (L710)

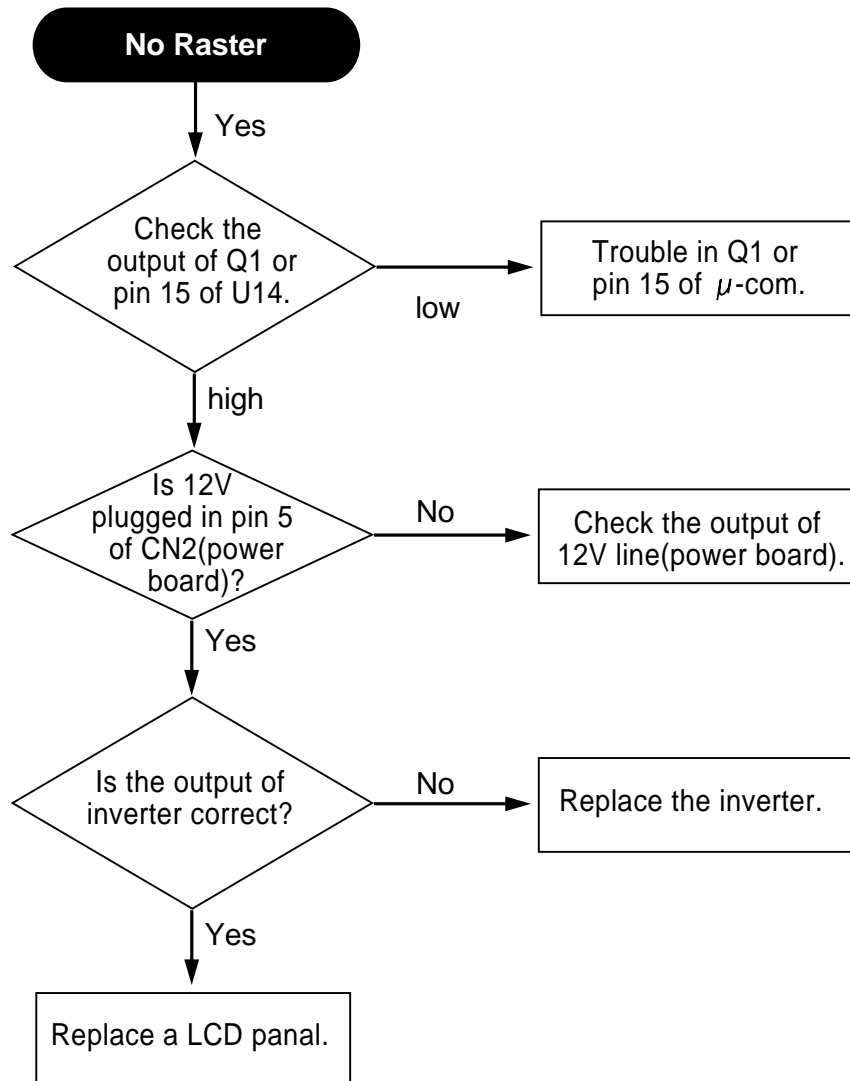
### 1. Abnormal mode detect



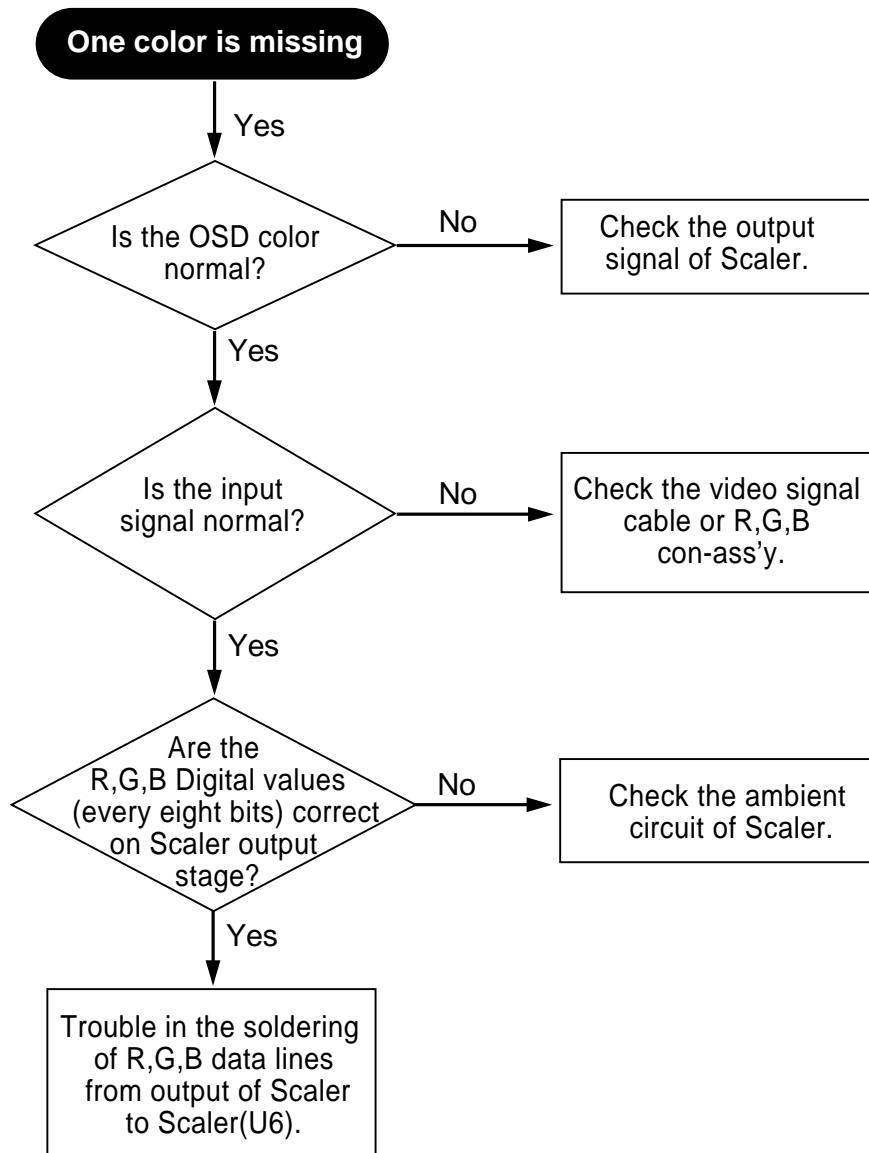
## 2. Trouble in Power on



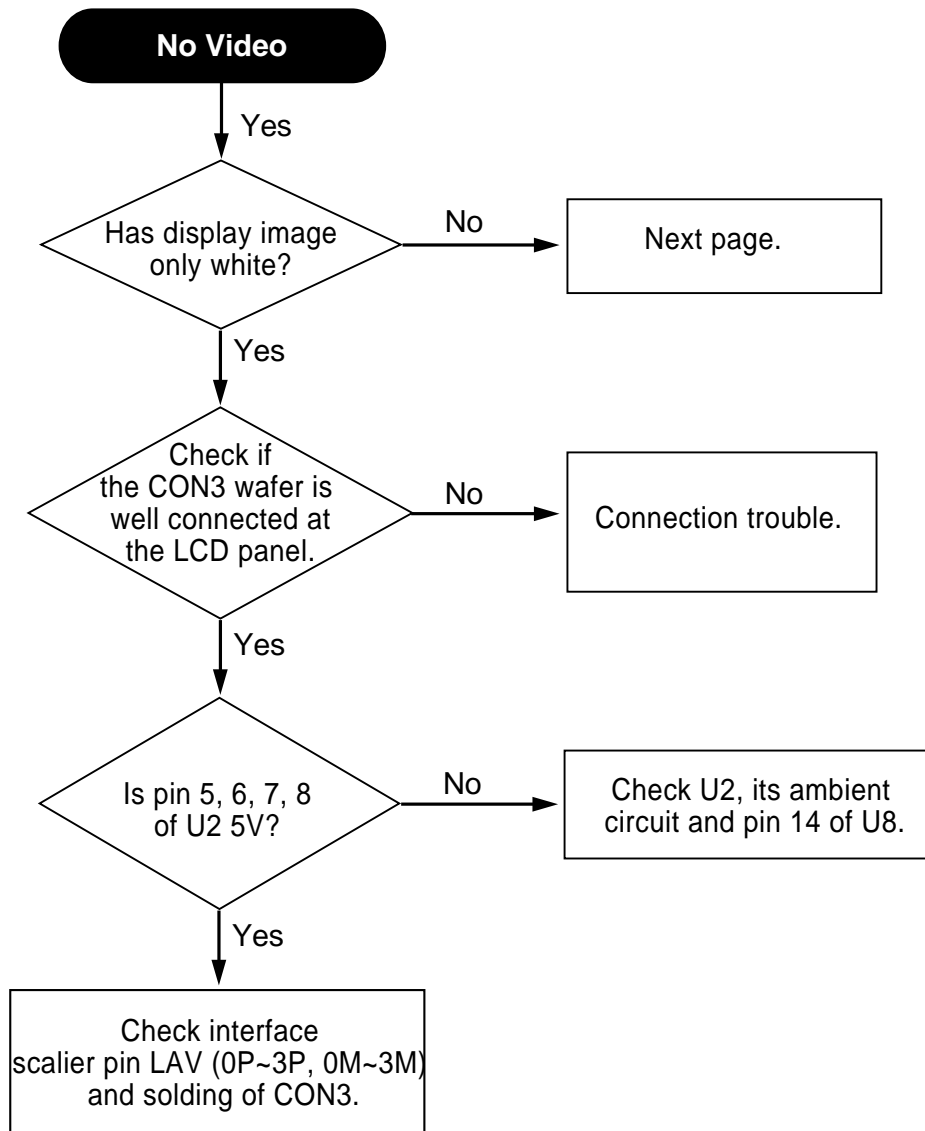
### 3. No Raster



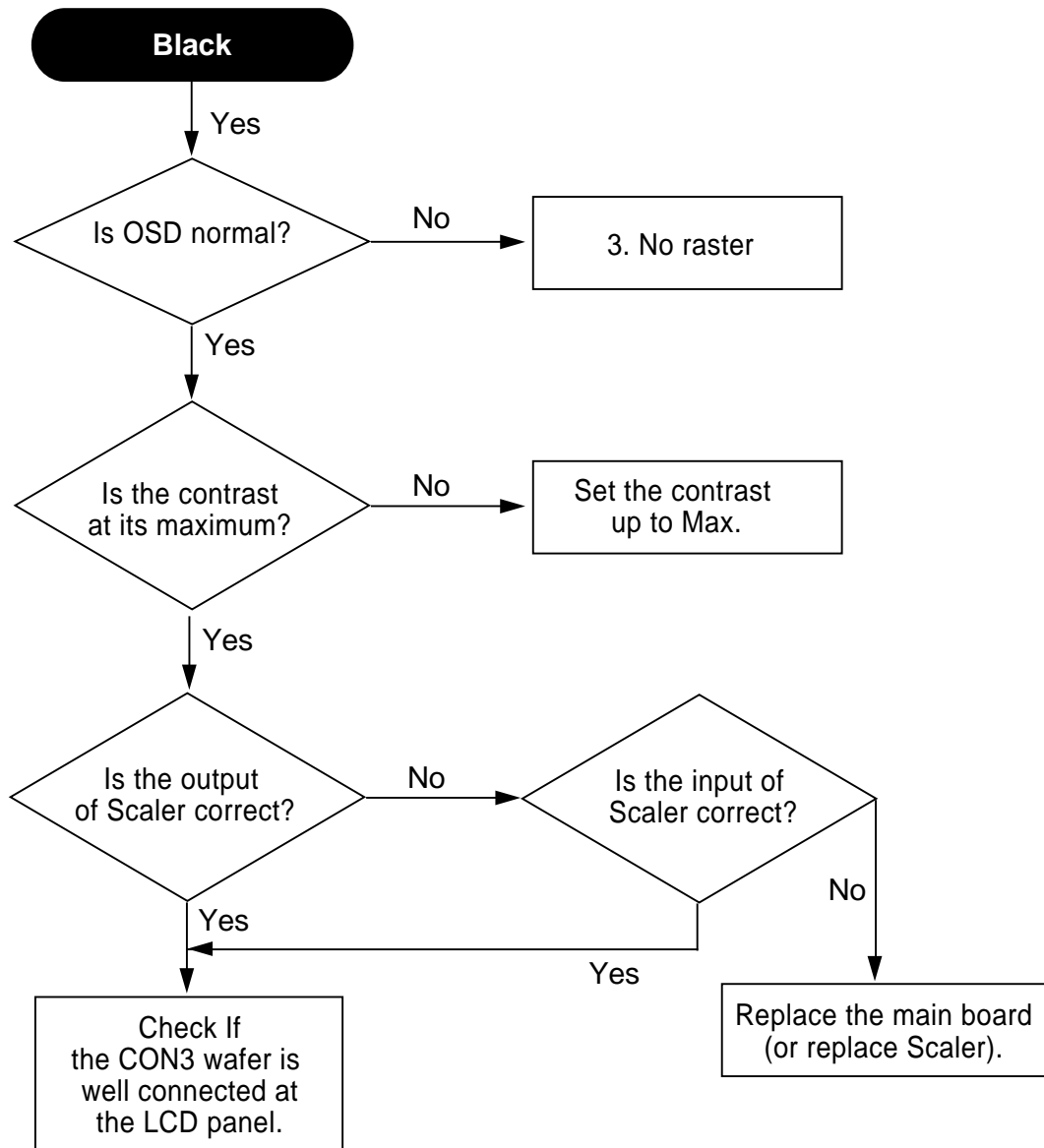
### 4. One color is missing



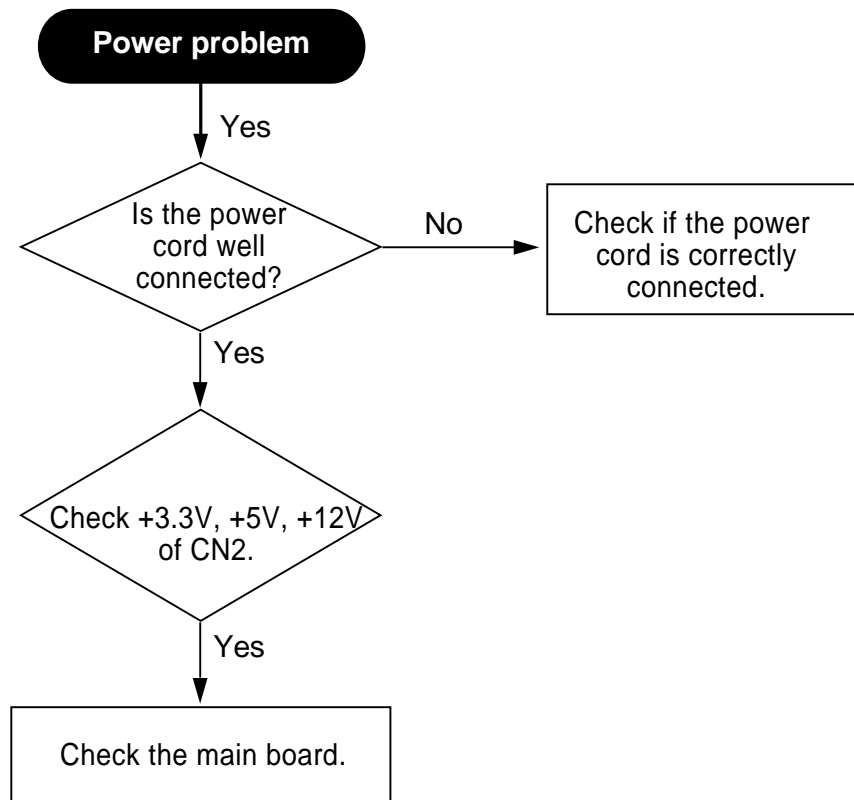
## 5. No Video



## 5-1. No Video

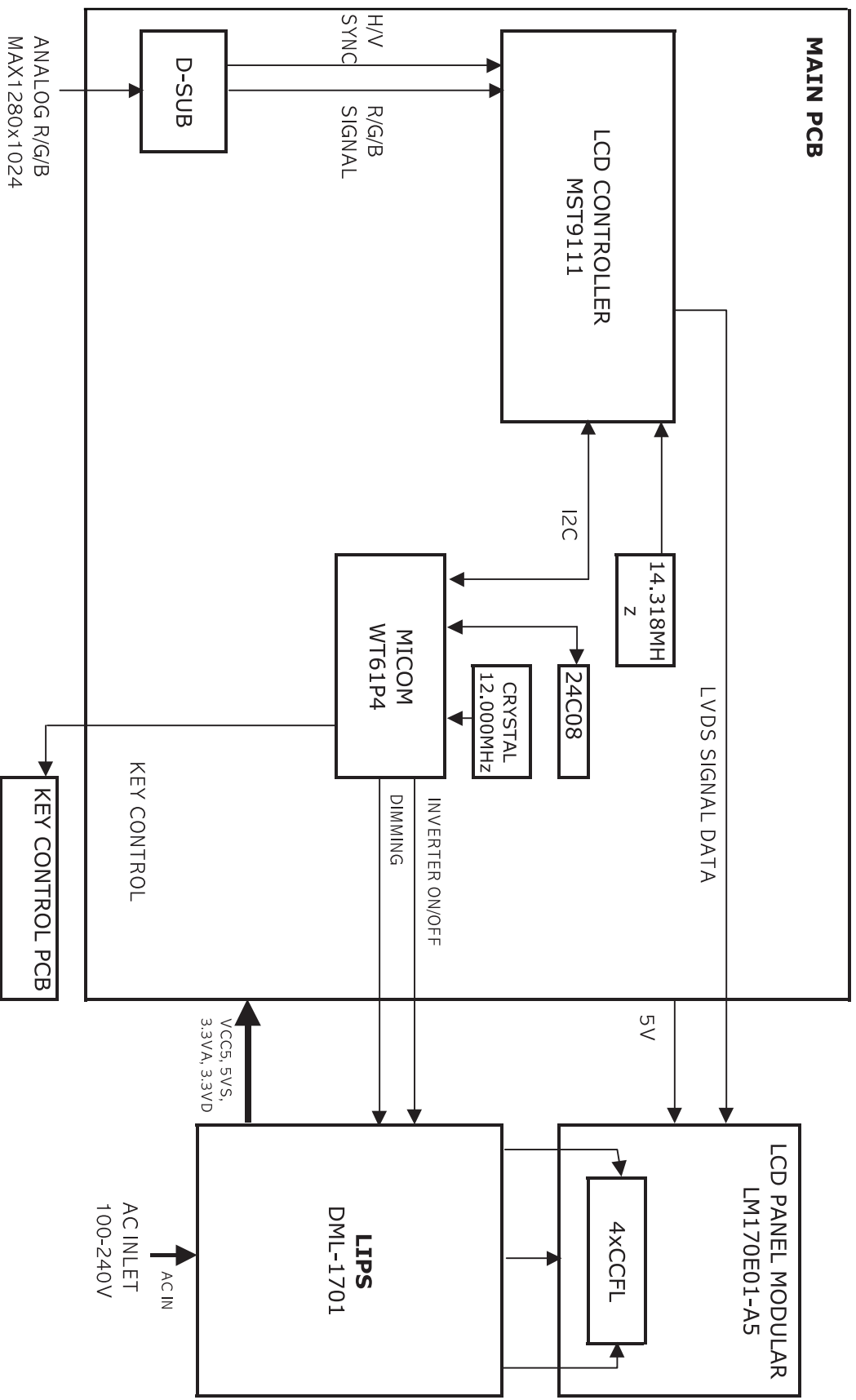


## 6. Power Problem



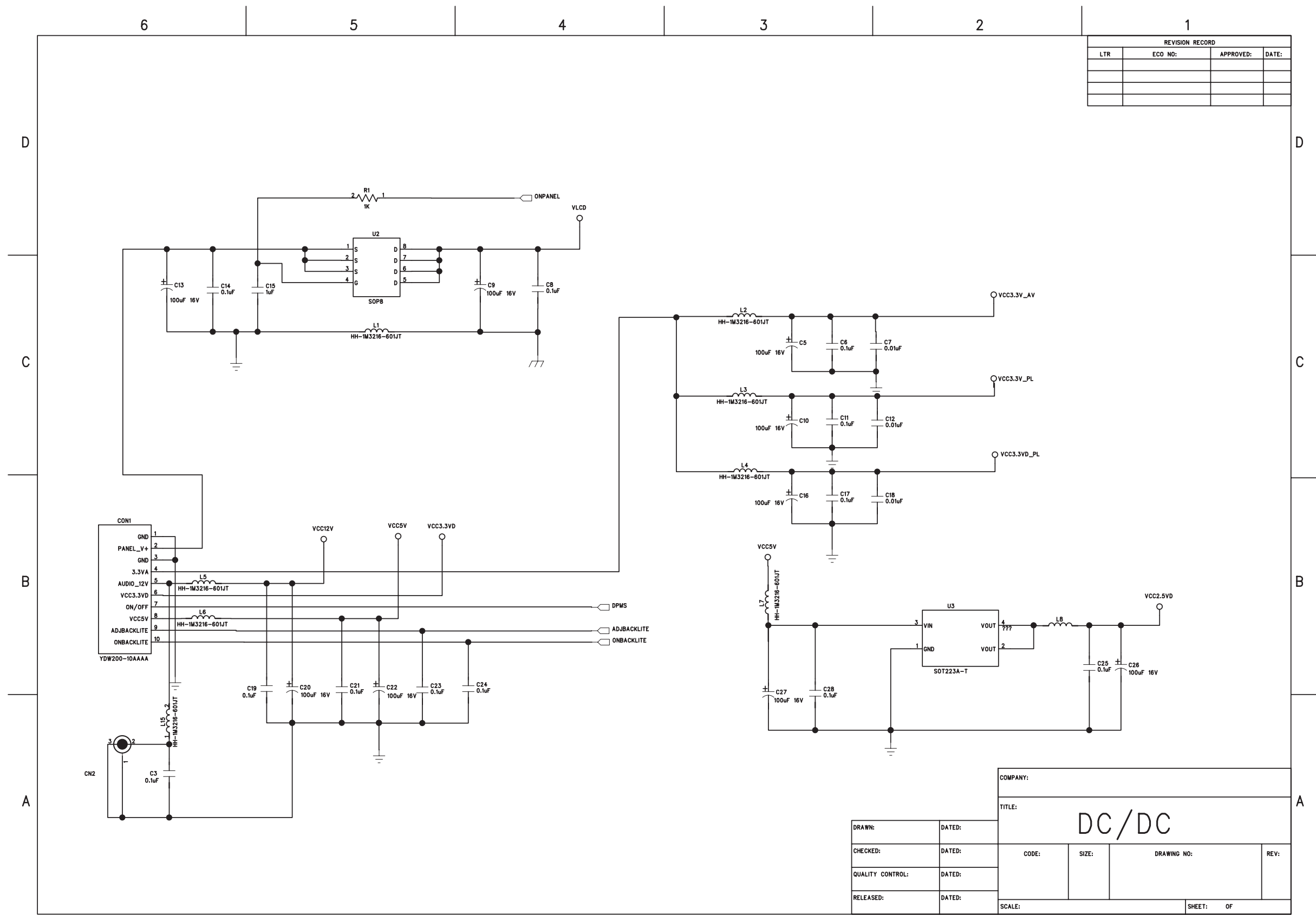


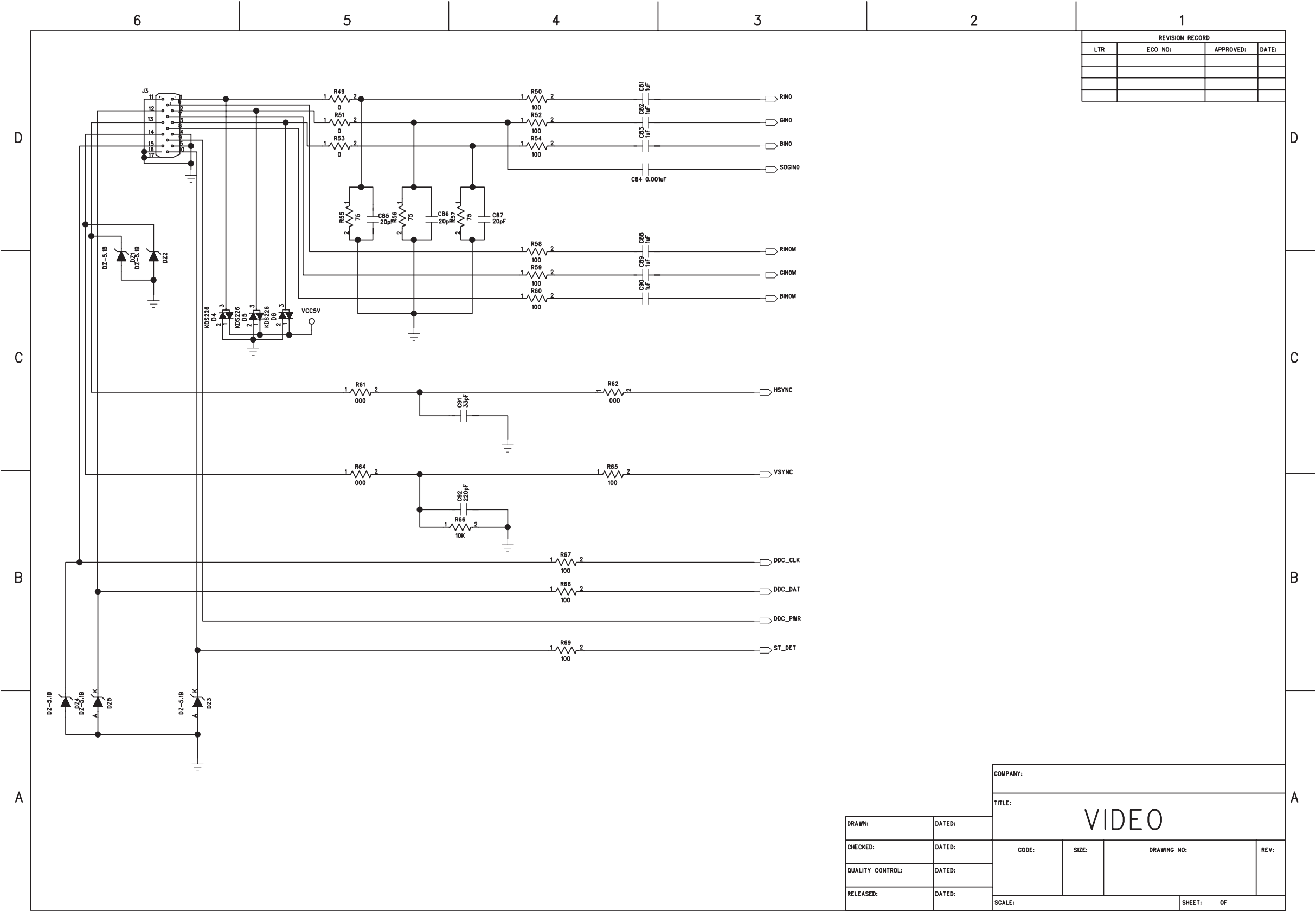
# CML-710 BLOCK DIAGRAM



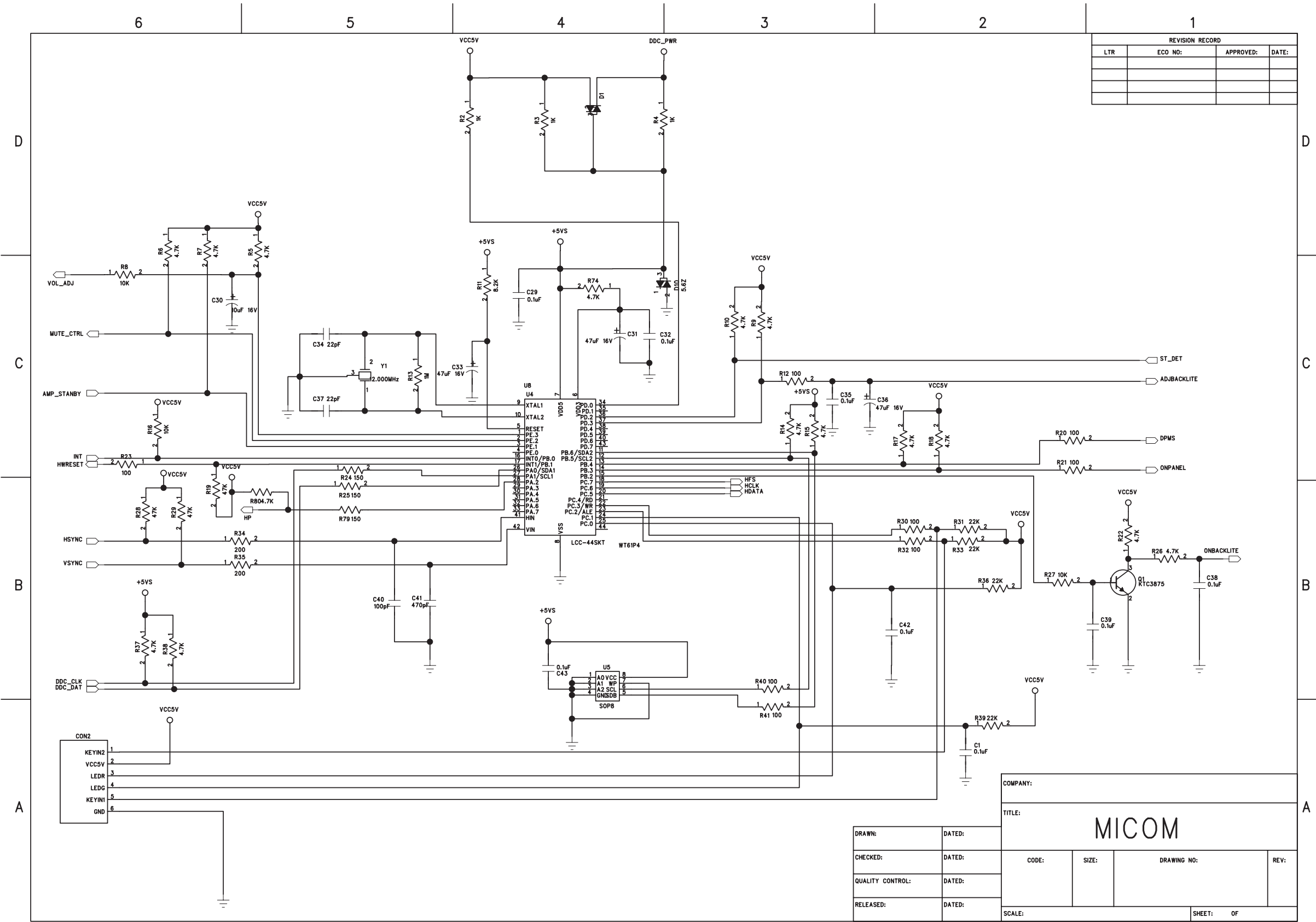
## BLOCK DIAGRAM

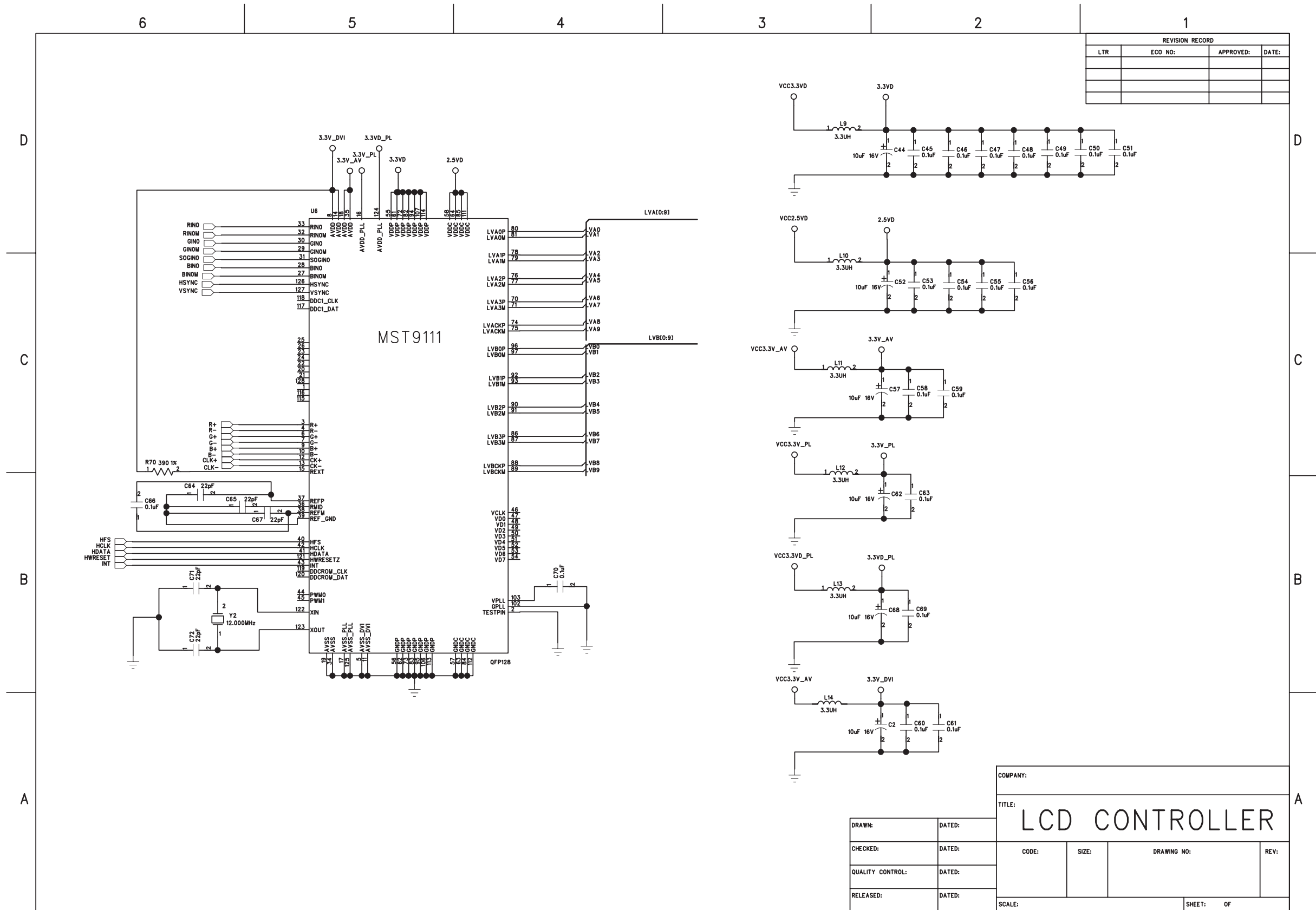
SCHEMATIC DIAGRAM(L710)

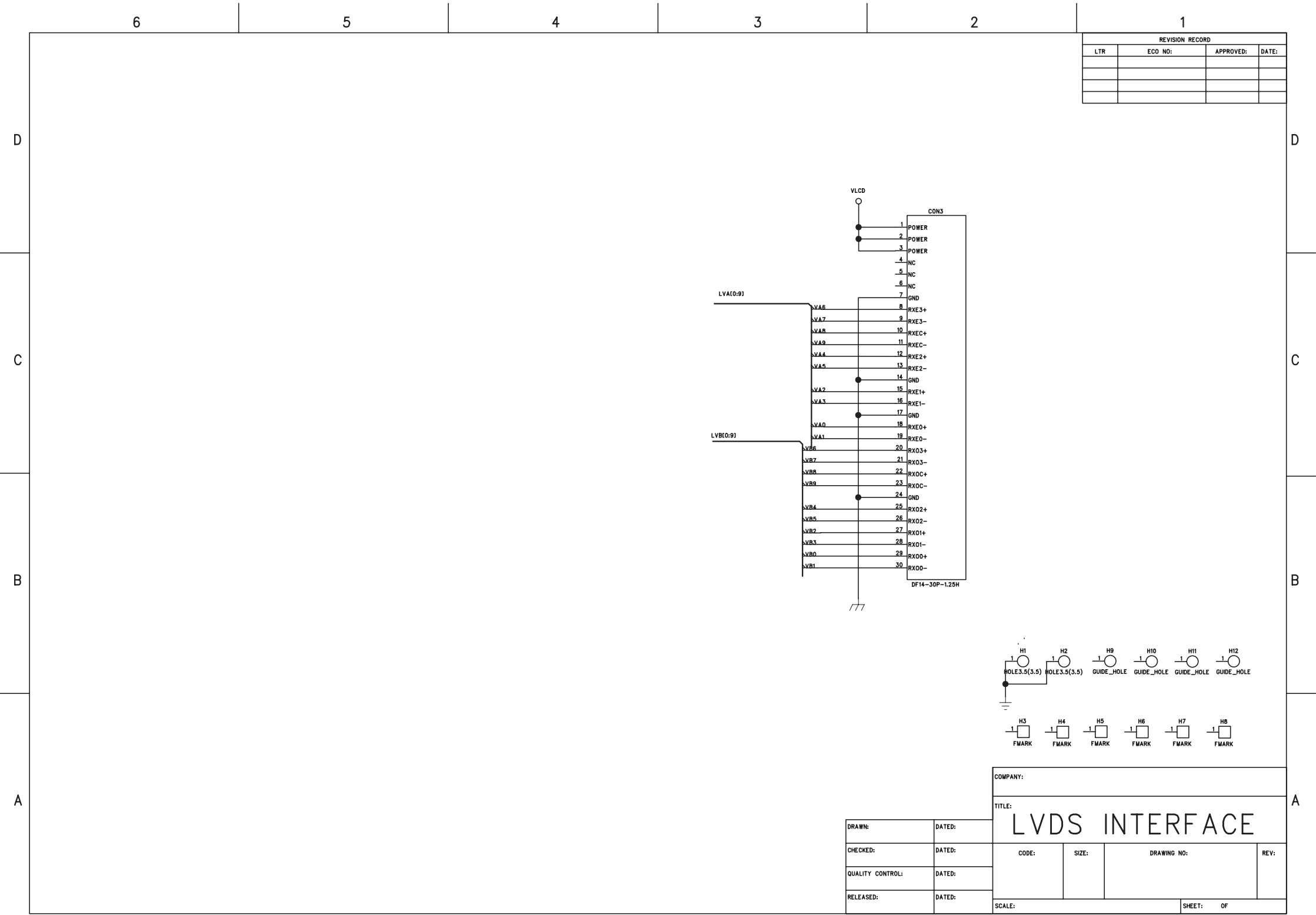




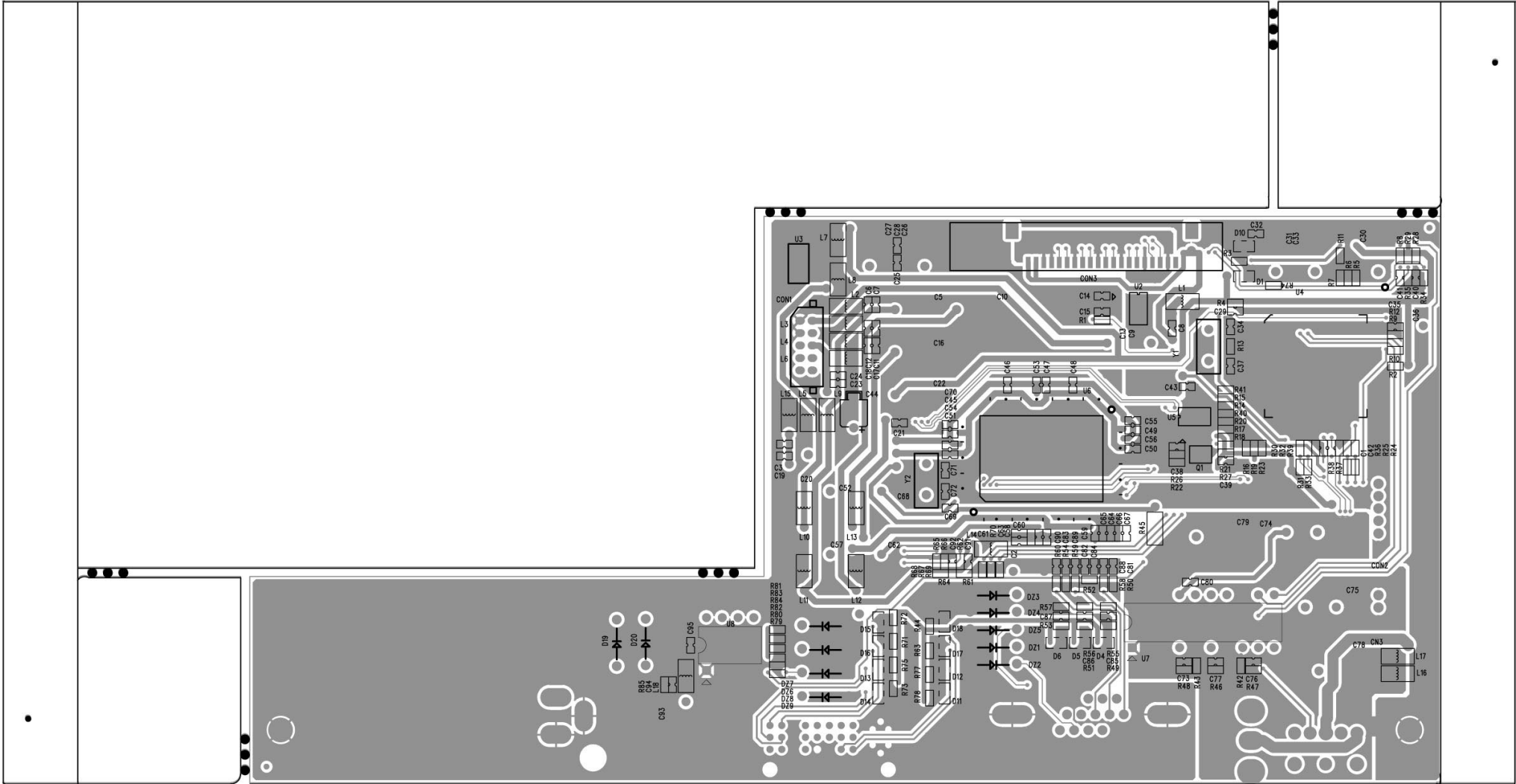
SCHEMATIC DIAGRAM



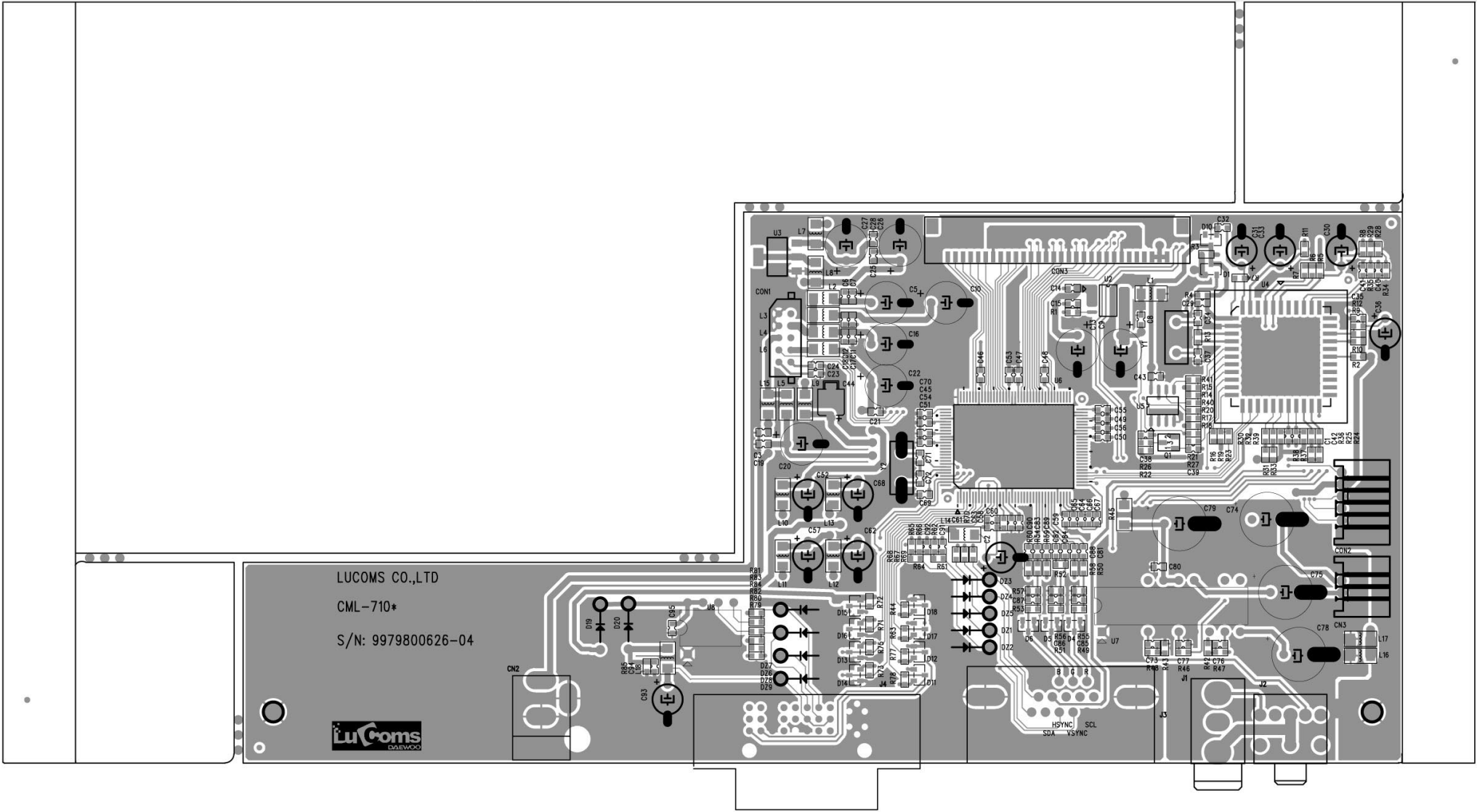




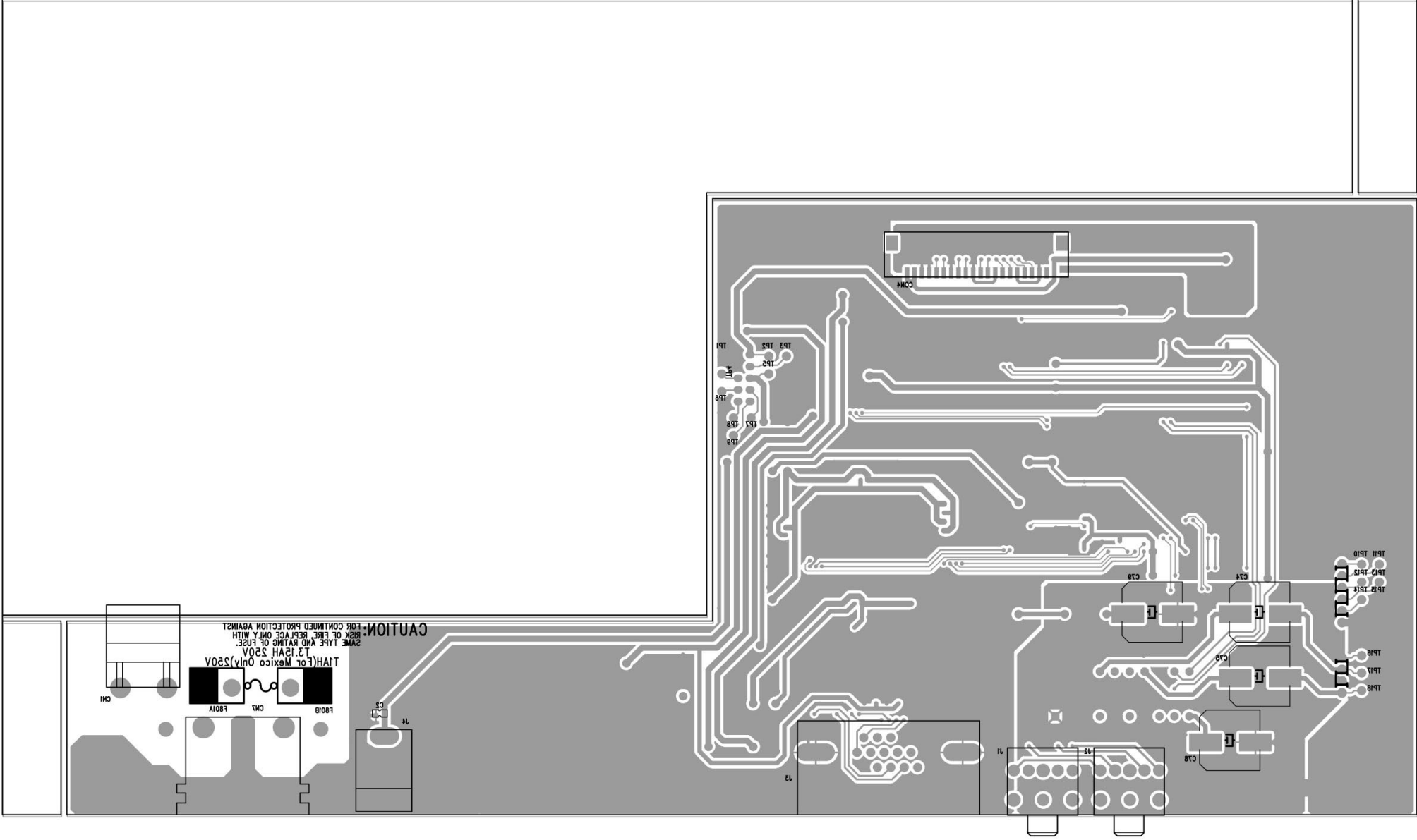
CAM350 V 5.0 : Wed Apr 21 15:30:33 2004 - (Untitled)



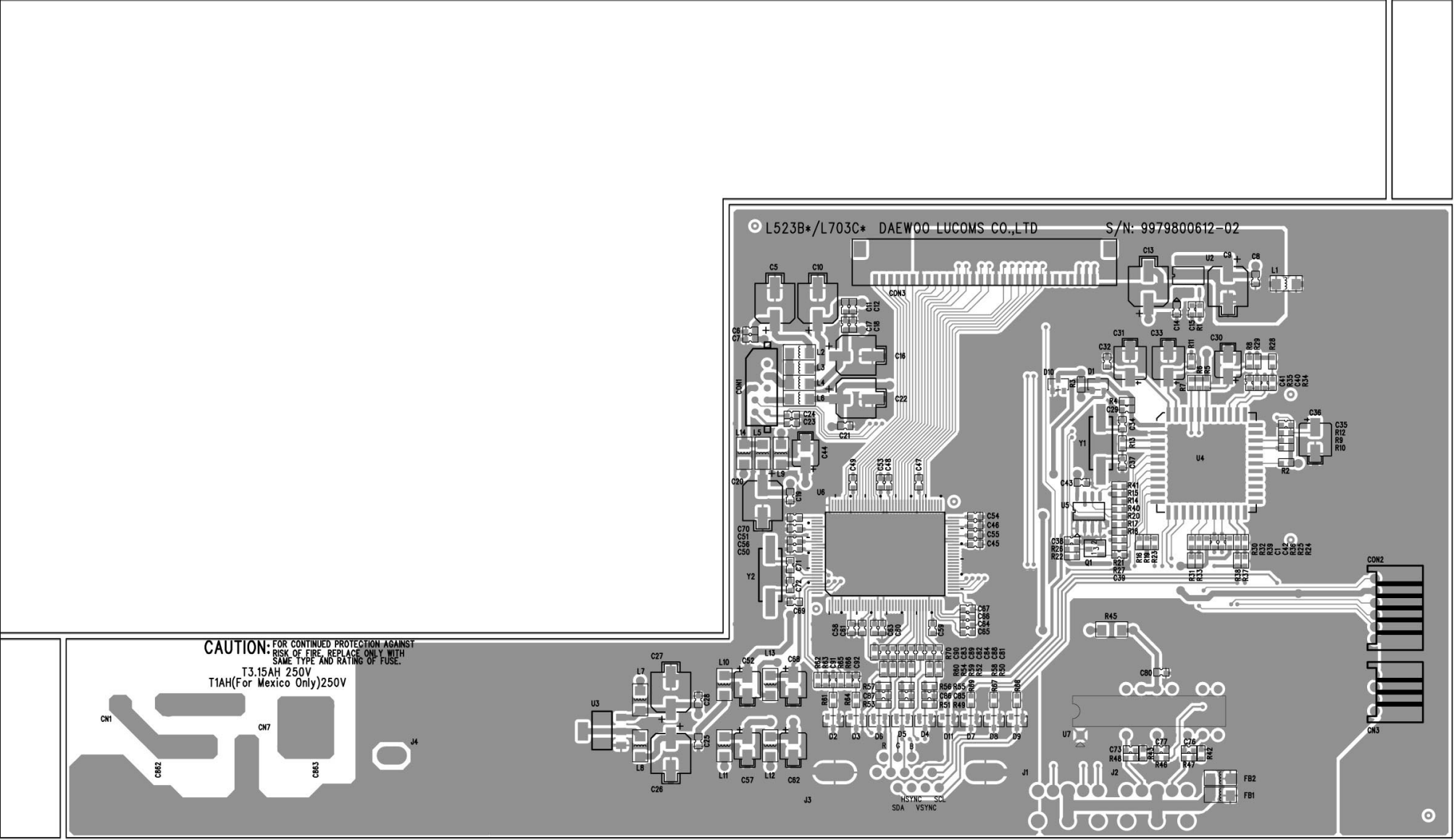
CAM350 V 5.0 : Wed Apr 21 15:33:41 2004 - (Untitled)







BOTTOM SIDE



TOP SIDE

INFORMATION OF PART DESCRIPTION

Important Safety Notice

Components identified with the International Symbol have special characteristics important for safety. When replacing any components, use only manufacturer’s specified parts.

Abbreviation of Description

RESISTOR Description

Tolerance	
F	± 1%
J	± 5%
K	± 10%
M	± 20%
G	± 2%

Example:

Fig & Index	Part No	Description
R101	Resistors	
	RD-4Z820J	Carbon : 82J
R30	HRFS472JBA	Chip 4.7K OHM J

CAPACITOR Description

Tolerance	
C	± 0.25pF
D	± 0.5%
F	± 1pF
J	± 5%
K	± 10%
P	± 100% ~ 0%
Z	± 80% ~ –

Example:

Fig & Index	Part No	Description
C28	Capacitors	
	HCFK104ZBA	Chip Cera 50V Z
	HCBK393KBA	Chip Cera 50V K
	HCQK102JBA	Chip Cera 50V J

## ELECTRICAL PARTS LIST (L710)

The components identified by mark  $\triangle$  have special characteristics important for safety and x-ray radiation. These should be replaced only with the types specified in the parts list.

LOC	PART-CODE	PART-NAME	PART-DESC
Z1010	PCFMCAJ267	COVER FRONT AS	CML-710
CA001	9970703003	CONN AS	12507HS-30+FI-X30H+1571#30=120
LCD	9979617103	LCD PANEL	LM170E01-A
LIPS	DDML1701—	LCD INVERTER + POWER	DML-1701
YF010	99720226A1	COVER FRONT AS	CML-710M C/FRONT AS
00010	9972022600	COVER FRONT	HB-HIPS GY-340A (SILVER SPRAY)
00010	22211102H4	RESIN HIPS	CH HR-1360 GY-340A G7851
00020	223126GY03	PAINT ACRYL	SILVER SV3109BP
00030	2233020801	THINNER	AC THINNER
00020	9974828700	BUTTON TACT	L710 HB-ABS GY-340A (SILVER)
00010	22210807A6	RESIN ABS	HB-ABS CH HF-0680 G7851
00020	223126GY03	PAINT ACRYL	SILVER SV3109BP
00030	2233020801	THINNER	AC THINNER
YF030	9972712800	FOOT	RUBBER
YF040	9977912902	TAPE ACETATE	ACETATE 0.27*30M
YF050	9974116900	FRAME	“L710 EGI 0.8T ( LGP,HYDIS )”
YF060	7003300511	SCREW MACHINE	BIN 3X5 MFZN
YF070	7173301011	SCREW TAPPTITE	TT2 BIN 3X10 MFZN
YF080	9975212000	PLATE I/O	L710 PC (0.5T)
YF090	9979500029	RECEPTACLE	JR-101S(C)
YF110	7173300611	SCREW TAPPTITE	TT2 BIN 3X6 MFZN
YF120	7S103B30B1	SCREW SPECIAL	M/C BIN 3*8 TW(B) MFZN
YF130	7173300611	SCREW TAPPTITE	TT2 BIN 3X6 MFZN
YF140	9977249900	SHIELD REAR	L710 EGI (0.8T)
YF150	7173300611	SCREW TAPPTITE	TT2 BIN 3X6 MFZN
YF160	9975112700	DECO LINE	L710 HALF MIRROR
YF170	9976811200	CLAMP MOUNT	NYLON 66 (DAMC-20)
Z2010	PCMPM1J266	PCB MAIN MANUAL AS	CML-710
CON1	9979220118	CONN WAFER	YDW200-10
CON2	9979220087	CONN WAFER	SMAW200-06/68163-0610
J3	9979200207	D-SUB 15P ANGLE	15P DDC BLUE W/OUT SCREW
U4	1WT61P4L44	IC MICOM	WT61P4-L44
Y1	5PZTT120MT	RESONATOR CERA	ZTT12.0MT
Y2	5XJ14R318F	CRYSTAL QUARTZ	HC-49/S 14.31818MHZ 50PPM
Z3010	PCMPJ1J266	PCB MAIN SMD AS	CML-710
C1	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C11	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C12	HCBK103KBA	C CHIP CERA	50V X7R 0.01MF K 1608
C14	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C15	HCFD105ZBA	C CHIP CERA	Y5V 10V 1MF Z 1608
C17	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C18	HCBK103KBA	C CHIP CERA	50V X7R 0.01MF K 1608
C19	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C21	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C23	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C24	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C25	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C28	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C29	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C32	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C35	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C38	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C39	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608

# ELECTRICAL PARTS LIST

LOC	PART-CODE	PART-NAME	PART-DESC
C40	HCQK101JBA	C CHIP CERA	50V CH 100PF J 1608
C41	HCQK471JBA	C CHIP CERA	50V CH 470PF J 1608
C42	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C43	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C45	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C46	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C47	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C48	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C49	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C50	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C51	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C53	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C54	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C55	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C56	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C58	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C59	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C6	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C60	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C61	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C63	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C64	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C65	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C66	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C67	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C69	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C7	HCBK103KBA	C CHIP CERA	50V X7R 0.01MF K 1608
C70	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C71	HCQK220JBA	C CHIP CERA	50V CH 22PF J 1608
C72	HCQK220JBA	C CHIP CERA	50V CH 22PF J 1608
C8	HCFK104ZBA	C CHIP CERA	50V Y5V 0.1MF Z 1608
C81	HCFD105ZBA	C CHIP CERA	Y5V 10V 1MF Z 1608
C82	HCFD105ZBA	C CHIP CERA	Y5V 10V 1MF Z 1608
C83	HCFD105ZBA	C CHIP CERA	Y5V 10V 1MF Z 1608
C84	HCBK102KBA	C CHIP CERA	50V X7R 1000PF K 1608
C85	HCQK200JBA	C CHIP CERA	50V CH 20PF J 1608
C86	HCQK200JBA	C CHIP CERA	50V CH 20PF J 1608
C87	HCQK200JBA	C CHIP CERA	50V CH 20PF J 1608
C88	HCFD105ZBA	C CHIP CERA	Y5V 10V 1MF Z 1608
C89	HCFD105ZBA	C CHIP CERA	Y5V 10V 1MF Z 1608
C90	HCFD105ZBA	C CHIP CERA	Y5V 10V 1MF Z 1608
C91	HCQK330JBA	C CHIP CERA	50V CH 33PF J 1608
C92	HCQK221JBA	C CHIP CERA	50V CH 220PF J 1608
CON3	9979220152	LVDS WAFER	12507WR-30
D1	DKDS193—	DIODE	KDS193
D10	DZZ02W5R6V	DIODE ZENER	Z02W5.6V
D4	DKDS226RTK	DIODE CHIP	KDS226(RTK)
D5	DKDS226RTK	DIODE CHIP	KDS226(RTK)
D6	DKDS226RTK	DIODE CHIP	KDS226(RTK)
L1	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT
L10	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT
L11	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT
L12	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT
L13	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT
L14	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT

LOC	PART-CODE	PART-NAME	PART-DESC
L2	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT
L3	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT
L4	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT
L5	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT
L6	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT
L7	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT
L8	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT
L9	HFFHH1M601	COIL CHIP BEAD	HH-1M3216-601JT
Q1	TKTC3875SY	TR CHIP	KTC3875SY(RTK)
R1	HRFS102JBA	R CHIP	1/16 1K OHM J 1608
R10	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R11	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R12	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R14	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R15	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R16	HRFS103JBA	R CHIP	1/16 10K OHM J 1608
R17	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R18	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R19	HRFS473JBA	R CHIP	1/16 47K OHM J 1608
R2	HRFS102JBA	R CHIP	1/16 1K OHM J 1608
R20	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R21	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R22	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R23	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R24	HRFS151JBA	R CHIP	1/16 150 OHM J 1608
R25	HRFS151JBA	R CHIP	1/16 150 OHM J 1608
R26	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R27	HRFS103JBA	R CHIP	1/16 10K OHM J 1608
R28	HRFS473JBA	R CHIP	1/16 47K OHM J 1608
R29	HRFS473JBA	R CHIP	1/16 47K OHM J 1608
R3	HRFS102JBA	R CHIP	1/16 1K OHM J 1608
R30	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R31	HRFS223JBA	R CHIP	1/16 22K OHM J 1608
R32	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R33	HRFS223JBA	R CHIP	1/16 22K OHM J 1608
R34	HRFS151JBA	R CHIP	1/16 150 OHM J 1608
R35	HRFS151JBA	R CHIP	1/16 150 OHM J 1608
R36	HRFS223JBA	R CHIP	1/16 22K OHM J 1608
R37	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R38	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R39	HRFS223JBA	R CHIP	1/16 22K OHM J 1608
R40	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R41	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R49	HRFS000JBA	R CHIP	1/16 0 OHM J 1608
R5	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R50	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R51	HRFS000JBA	R CHIP	1/16 0 OHM J 1608
R52	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R53	HRFS000JBA	R CHIP	1/16 0 OHM J 1608
R54	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R55	HRFS750JBA	R CHIP	1/16 75 OHM J 1608
R56	HRFS750JBA	R CHIP	1/16 75 OHM J 1608
R57	HRFS750JBA	R CHIP	1/16 75 OHM J 1608
R58	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R59	HRFS101JBA	R CHIP	1/16 100 OHM J 1608

# ELECTRICAL PARTS LIST

LOC	PART-CODE	PART-NAME	PART-DESC
R6	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R60	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R61	HRFS000JBA	R CHIP	1/16 0 OHM J 1608
R62	HRFS000JBA	R CHIP	1/16 0 OHM J 1608
R64	HRFS000JBA	R CHIP	1/16 0 OHM J 1608
R65	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R66	HRFS103JBA	R CHIP	1/16 10K OHM J 1608
R67	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R68	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R69	HRFS101JBA	R CHIP	1/16 100 OHM J 1608
R7	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R70	HRFS391JBA	R CHIP	1/16 390 OHM J 1608
R74	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
R8	HRFS103JBA	R CHIP	1/16 10K OHM J 1608
R9	HRFS472JBA	R CHIP	1/16 4.7K OHM J 1608
U2	TFDS4435A-	FET	FDS4435A
U3	1B1117N25-	IC REGULATOR	B1117N-2.5
U4S	9979300502	SOCKET IC	PLCC 1.27PT 44PIN(22*22)
U5	1CAT24WC08	IC EEPROM	CAT24WC08 J
U6	1MST9111—	IC LCD CONTROLLER	MST9111
Z4010	PCMPJ0J266	PCB MAIN ODD SHAPE AS	CML-710
Z5010	PCMPJRJ266	PCB MAIN RADIAL AS	CML-710
C10	CEXF1C101C	C ELECTRO	16V RUS 100MF (6.3X11) TP
C13	CEXF1C101C	C ELECTRO	16V RUS 100MF (6.3X11) TP
C16	CEXF1C101C	C ELECTRO	16V RUS 100MF (6.3X11) TP
C2	CEXF1H100C	C ELECTRO	50V RUS 10MF (5X11) TP
C20	CEXF1C101C	C ELECTRO	16V RUS 100MF (6.3X11) TP
C22	CEXF1C101C	C ELECTRO	16V RUS 100MF (6.3X11) TP
C26	CEXF1C101C	C ELECTRO	16V RUS 100MF (6.3X11) TP
C27	CEXF1C101C	C ELECTRO	16V RUS 100MF (6.3X11) TP
C30	CEXF1H100C	C ELECTRO	50V RUS 10MF (5X11) TP
C31	CEXF1C470C	C ELECTRO	16V RUS 47MF (5X11) TP
C33	CEXF1C470C	C ELECTRO	16V RUS 47MF (5X11) TP
C36	CEXF1C470C	C ELECTRO	16V RUS 47MF (5X11) TP
C44	CEXF1H100C	C ELECTRO	50V RUS 10MF (5X11) TP
C5	CEXF1C101C	C ELECTRO	16V RUS 100MF (6.3X11) TP
C52	CEXF1H100C	C ELECTRO	50V RUS 10MF (5X11) TP
C57	CEXF1H100C	C ELECTRO	50V RUS 10MF (5X11) TP
C62	CEXF1H100C	C ELECTRO	50V RUS 10MF (5X11) TP
C68	CEXF1H100C	C ELECTRO	50V RUS 10MF (5X11) TP
C9	CEXF1C101C	C ELECTRO	16V RUS 100MF (6.3X11) TP
Z6010	PCMPJAJ266	PCB MAIN AXIAL AS	CML-710
DZ1	DDZ5R1B—	DIODE ZENER	DZ-5.1B
DZ2	DDZ5R1B—	DIODE ZENER	DZ-5.1B
DZ3	DDZ5R1B—	DIODE ZENER	DZ-5.1B
DZ4	DDZ5R1B—	DIODE ZENER	DZ-5.1B
DZ5	DDZ5R1B—	DIODE ZENER	DZ-5.1B
PCB	9979800626	PCB MAIN	CML-710D T=1.6T
Z2020	PCPLSWJ267	PCB CONTROL AS	CML-710
CN901	9970760057	CONN AS	SMH200-06+YBNH200-07+1007#26=220
LED1	DSD50GYWS-	LED	SD50GYWS(GREEN/AMBER)
Z3030	PCPLJRJ267	PCB CONTROL RAD.AS	CML-710
SW901	5S50101Z10	SW TACT	KPT-1115AM
SW902	5S50101Z10	SW TACT	KPT-1115AM
SW903	5S50101Z10	SW TACT	KPT-1115AM



LOC	PART-CODE	PART-NAME	PART-DESC
SW904	5S50101Z10	SW TACT	KPT-1115AM
SW905	5S50101Z10	SW TACT	KPT-1115AM
SW906	5S50101Z10	SW TACT	KPT-1115AM
SW907	5S50101Z10	SW TACT	KPT-1115AM
Z4030	PCPLJAJ267	PCB CONTROL AXIAL AS	CML-710
PCB	9979800630	PCB CONTROL	CML-710D T=1.6*
R207	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R209	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R901	RD-AZ303J-	R CARBON FILM	1/6 30K OHM J
R902	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J
R903	RD-AZ302J-	R CARBON FILM	1/6 3K OHM J
R904	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
R905	RD-AZ302J-	R CARBON FILM	1/6 3K OHM J
R906	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J
R907	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
Z1020	PCBCCPJ267	COVER REAR AS	CML-710
YR010	9972117600	COVER REAR	HB-HIPS GY-8105A (DARK GRAY)
00010	22211102H5	RESIN HIPS	CH HR-1360 GY-8105A G4646
YR020	99779234A0	HINGE AS L	CML-710 HINGE AS
YR030	99779235A0	HINGE AS R	CML-710 HINGE AS
YR040	7173400811	SCREW TAPPTITE	TT2 BIN 4X8 MFZN
YR050	7173301212	SCREW TAPPTITE	TT2 BIN 3X12 MFZN BK
YR060	9975842800	LABEL I/O	P.E T=0.1*220*11 (L710)
Z1030	PCSSSWJ266	STAND AS	CML-710DMW-LU
YST10	99729251A0	STAND AS	CML-710 STAND AS
00010	9972925100	STAND BASE	L710 HB-HIPS ( SPRAY )
00010	22211102H5	RESIN HIPS	CH HR-1360 GY-8105A G4646
00020	9973924900	BKT STAND	L710 EGI(2.3T)
00030	7175400811	SCREW TAPPTITE	TT2 FLT 4X8 MFZN
00040	9972712900	FOOT	RUBBER (BLACK)
YST20	7003400811	SCREW MACHINE	BIN 4X8 MFZN
YST30	9972925200	STAND FRONT	L710 HB-HIPS
00010	22211102H5	RESIN HIPS	CH HR-1360 GY-8105A G4646
YST40	7173400811	SCREW TAPPTITE	TT2 BIN 4X8 MFZN
YST50	9972925300	STAND REAR	L710 HB-HIPS
00010	22211102H5	RESIN HIPS	CH HR-1360 GY-8105A G4646
Z1040	PCPKCPJ267	PACKING AS	CML-710
TP061	W1113D831-	CORD POWER	1 SVT 3X18AWG 1.8M BK
TP062	9970800058	CABLE SIGNAL AS	15P+15P/DDC=1.5M(GY641A)
TP063	9978212900	BAG POLY	PE FILM T0.05*250*350
YP001	9975433001	LABEL RATING	PE 710
YP010	9972610300	HANDLE	66 SHEET
YP020	9978215400	BAG POLY	PEHD T=0.5*600*850
YP030	2TP00075CL	TAPE OPP	50X75 CLEAR
YP040	9978051901	BOX CARTON	SW-3 466*443*134 (L710 )
YP050	9978137200	CUSHION	EPS CML-710
YP060	9978634902	MANUAL INSTRUCTION	CML-710/710M
YP120	9975842900	LABEL CLEAR	STICKER CLEAR •20 PVC
YP130	9919310000	LABEL BARCODE E	ART PAPER COM IMPRINTABLE



